

# **ATTACHMENTS**

**Under Separate Cover Council Meeting** 

6.00pm Tuesday 23 June 2020

## **Table of Contents**

7.5	.5 P19-256 46 Squires Road, Teesdale (3 lot subdivision)	
	Attachment 2	Copy of application



#### GOLDEN PLAINS SHIRE Application for Planning Permit for a Subdivision

Supplied by Luke Van Kruijsbergen

Submitted Date 16/08/2019

Modified by Luke Van Kruijsbergen (Swanson Surveying Pty Ltd)

Modified Date 16/06/2020

**Application Details** 

Application Type Planning Permit for a Subdivision

Version 3

Applicant Reference Number 10501

Responsible Authority Name Golden Plains Shire Council

Responsible Authority Reference Number(s) P19-256
SPEAR Reference Number S145657B

Application Status Permit Decision Pending

Planning Permit Issue Date NA
Planning Permit Expiry Date NA

The Land

Primary Parcel 46 SQUIRES ROAD, TEESDALE VIC 3328

Lot 1/Plan PS611489 SPI 1\PS611489 CPN 41400810

Zone: 32.03 Low Density

Residential

Overlay: 43.02 Design and

Development

The Proposal

Plan Number (Not Supplied)

Number of lots

Proposal Description It is proposed to subdivide the land into three lots

with a common property driveway, see

planning report for details.

Estimated cost of the development for which a permit is required \$ 0

**Existing Conditions** 

Existing Conditions Description The land is currently occupied by a single dwelling

and associated shedding, see planning report for

details.

Title Information - Does the proposal breach an encumbrance on

Title?

The proposal does not breach an encumbrance on title, such as a restrictive covenant, section 173

agreement or other obligation such as an easement

or building envelope.

**Applicant Contact** 

Applicant Contact Mr Luke Van Kruijsbergen Swanson Surveying Pty Ltd

Swanson Surveying Pty Ltd

101 West Fyans Street, Newtown, Geelong, VIC, 3220 and PO Box 1025 Geelong, VIC, 3220

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Business Phone: 0448110051
Email: luke@swansonsurveying.com.au

Applicant

Applicant

Owner

Owner

(Owner details as per Applicant)

Declaration

I, Luke Van Kruijsbergen, declare that the owner (if not myself) has been notified about this application.
I, Luke Van Kruijsbergen, declare that all the information supplied is true.

Authorised by

Organisation

Luke Van Kruijsbergen

Swanson Surveying Pty Ltd

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## REGISTER SEARCH STATEMENT (Title Search) Transfer of Land Act 1958

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VOLUME 11048 FOLIO 403

Security no : 124077575195P Produced 22/05/2019 01:57 PM

#### LAND DESCRIPTION

Lot 1 on Plan of Subdivision 611489G. PARENT TITLE Volume 01260 Folio 890 Created by instrument PS611489G 14/01/2008

#### REGISTERED PROPRIETOR

Estate Fee Simple Joint Proprietors

#### ENCUMBRANCES, CAVEATS AND NOTICES

MORTGAGE AS011838A 15/03/2019 ING BANK (AUSTRALIA) LTD

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan set out under DIAGRAM LOCATION below.

#### DIAGRAM LOCATION

SEE PS611489G FOR FURTHER DETAILS AND BOUNDARIES

#### ACTIVITY IN THE LAST 125 DAYS

NUMBER					STATUS	DATE
AS011837C	(E)	DISCHARGE	OF	MORTGAGE	Registered	15/03/2019
AS011838A	(E)	MORTGAGE			Registered	15/03/2019

------END OF REGISTER SEARCH STATEMENT------END OF REGISTER

Additional information: (not part of the Register Search Statement)

Street Address: 46 SQUIRES ROAD TEESDALE VIC 3328

#### ADMINISTRATIVE NOTICES

NIL

eCT Control 17125H GADENS LAWYERS Effective from 15/03/2019

DOCUMENT END

Title 11048/403 Page 1 of 1

Item 7.5 - Attachment 2

Department of Environment, Land, Water and Planning

## **Planning Property Report**

from www.planning.vic.gov.au on 16 August 2019 02:43 PM

Lot and Plan Number: Lot 1 PS611489

Address: 46 SQUIRES ROAD TEESDALE 3328

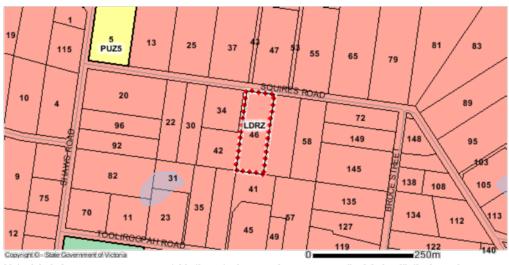
Local Government (Council): GOLDEN PLAINS Council Property Number: 41400810

Directory Reference: VicRoads 523 Q2

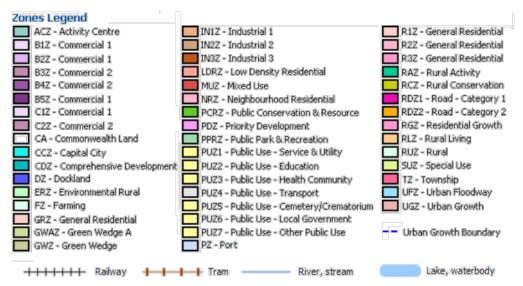
#### **Planning Zone**

LOW DENSITY RESIDENTIAL ZONE (LDRZ)

SCHEDULE TO THE LOW DENSITY RESIDENTIAL ZONE (LDRZ)



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.



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Department of Environment, Land, Water and Planning

#### **Planning Overlay**

#### **DESIGN AND DEVELOPMENT OVERLAY (DDO) DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 5 (DDO5)**



#### OTHER OVERLAYS

Other overlays in the vicinity not directly affecting this land

**BUSHFIRE MANAGEMENT OVERLAY (BMO)** 

**ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)** 



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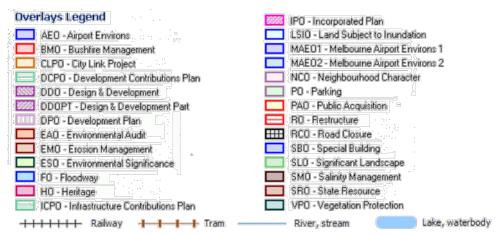
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Department of Environment, Land, Water and Planning

#### **Planning Overlays Legend**



Note: due to overlaps some colours on the maps may not match those in the legend.

#### **Further Planning Information**

Planning scheme data last updated on 14 August 2019.

A planning scheme sets out policies and requirements for the use, development and protection of land.

This report provides information about the zone and overlay provisions that apply to the selected land.

Information about the State and local policy, particular, general and operational provisions of the local planning scheme that may affect the use of this land can be obtained by contacting the local council or by visiting <a href="Planning Schemes Online">Planning Schemes Online</a>

This report is NOT a **Planning Certificate** issued pursuant to Section 199 of the *Planning and Environment Act 1987*. It does not include information about exhibited planning scheme amendments, or zonings that may abut the land. To obtain a Planning Certificate go to <u>Titles and Property Certificates</u>

For details of surrounding properties, use this service to get the Reports for properties of interest

To view planning zones, overlay and heritage information in an interactive format visit Planning Maps Online

For other information about planning in Victoria visit www.planning.vic.gov.au

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Lot-1-PS611489-PLANN NG-PROPERTY-REPORT

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## LAND CAPABILITY ASSESSMENT

# Ballarat Soil Testing

Specialising in building site soil classification
& land capability assessments
ABN 24 586 140 741

SUMMARY:	
Primary treatment device	3000-3500 <i>L</i> septic tank
Secondary treatment device	Sand filter of $15m^2$ or Aerated Water Treatment System (AWTS) instead of septic tank and sand filter
Land application system	Subsurface irrigation system of 375 <i>m</i> <sup>2</sup> The drip irrigation system needs to be installed at a depth of 150-250 <i>mm in</i> situ or in imported good quality topsoil with a 1 <i>m</i> spacing between lines
Loading rate	750L/day
Soil category (AS/NZ 1547:2000)	5b - moderately structured silty clay (light clay)
Design loading rate (DIR)	3mm/day

JOB:	
Reference No	SS080819
Date	August 9, 2019

SITE:	
Proposed development	New dwelling with onsite wastewater treatment system
Property address	46 Squires Road, Teesdale
Shire council	Golden Plains Shire Council

PREPARED FOR:	
Client name	Swanson Surveying Pty Ltd
Address	PO Box 1025, Geelong VIC 3220

PREPARED BY:	
Geologist	S. O'Loughlin
Address	313 Scott Street, Buninyong
Telephone	0419 536 910
Email	ballaratsoiltesting@gmail.com

REVIEW:	DATE:	DETAILS:
A	August 9, 2019	Initial draft for submission
В		
C		
D		
E		
F		

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#### 1 Commission

When a property developer, potential buyer or land holder considers subdividing land or building one or more premises, they must first determine whether wastewater can be sustainably managed and absorbed by the land within the property boundaries without negatively impacting the beneficial uses of surface waters and groundwater.

It is the responsibility of the property owner to prove to Council that the proposed onsite wastewater treatment and recycling system will operate sustainably on the property without adverse impacts on public health or the environment.

The objective of this investigation is to conduct a Land Capability Assessment (LCA) and propose a suitable type of onsite wastewater management system for the proposed residential development at the above address.

This document provides a detailed LCA for the allotment, information about the site and soil conditions along with monitoring and management recommendations.

This report has been written to comply with all relevant and current Victorian legislation, guidelines, codes and standards, including:

- AS/NZS 1547:2012, Onsite domestic wastewater management;
- AS/NZS 1547:1994, Onsite domestic wastewater management;
- Code of Practice Onsite Wastewater Management, Publication No. 891.4, July 2016, Environmental Protection Authority;
- Land Capability Assessment for Onsite Domestic Wastewater Management, Publication 746.1, March 2003, EPA Victoria;
- Victorian Land Capability Assessment Framework, January 2014, Municipal Association of Victoria.

## 2 Locality and site description

## 2.1 The site

	Site shape, dimensions, size, gradient and drainage
The site has an estimated area of:	$4716m^2$ in the proposed Lot 1 subdivision dwelling and effluent field area with the existing three-bedroom dwelling. $4000m^2$ in the proposed Lot 2 area. $4000m^2$ in the proposed Lot 3 area.
The ground surface is:	Relatively flat.
The gradient of the site is:	Slight slope falling to southeast.
The drainage on site is:	Fair.

	Existing use and development on the site		
The current use of the site is:	Residential and domestic yard. Grazing at rear.		
The buildings or works located on the site are:	Three-bedroom dwelling with detached garage.		

	Existing access arrangements	
The main vehicle access to the site is provided from:	Gate access from Squires Road.	
The space available for vehicle maneuverability can be considered:	Excellent.	
The site is located:	Please refer to Attachment 1.	

	Existing vegetation		
site, including the type, location,	Lawn and pasture grasses. Rows of trees along northern, eastern and western fenceline of proposed Lot 1. Rows of trees along western fenceline and through centre of proposed Lot 2. Row of trees along southern fenceline of proposed Lot 3.		

## 2.2 The locality and surrounding land

	Existing use and development on adjacent sites	
Describe the land and existing land uses around the subject land:	Residential area. LDRZ - Low density residential zone.	

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## 3 Existing development

## 3.1 Construction

	Building
The existing building on site is:	Dwelling and detached shedding.
The number of bedrooms/study is:	Three (3) bedrooms.
The maximum occupancy is :	Four (4) persons.

#### 3.2 Wastewater

	Target effluent quality
Wastewater system:	Aims to achieve the target effluent quality of BOD <20 mg/L and SS <30mg/L.
Existing wastewater load:	Daily household wastewater generation is estimated by multiplying the potential occupancy, which is based on the number of bedrooms (plus one person), by the Minimum Wastewater Flow Rates.  Assessments should include any additional room(s) shown on the house plan such as a study, library or sunroom that could be closed off with a door, as a bedroom for the purposes of the following calculations.  The following have been considered:  Three-bedroom dwelling on this site  Water-saving fixtures installed  Four (4) people maximum occupancy  Wastewater generation of 150L/day/person.  Therefore:  Total Design Load = 600L/day

## 3.3 Intended water supply and sewer source

	Services
Domestic water supply	Reticulated water supply is provided.
Availability of sewer	No town sewerage system is likely to be connected in the short to medium future.

•

## 4 Proposed development

## 4.1 Construction

	Building
The proposed building on site is:	New dwelling with onsite wastewater treatment system
The number of bedrooms/study is proposed to be:	Four (4) bedrooms
The maximum occupancy is proposed to be:	Five (5) persons

#### 4.2 Wastewater

	Target effluent quality
Wastewater system:	Aims to achieve the target effluent quality of BOD <20 mg/L and SS <30mg/L.
Anticipated wastewater load:	Daily household wastewater generation is estimated by multiplying the potential occupancy, which is based on the number of bedrooms (plus one person), by the Minimum Wastewater Flow Rates.  Assessments should include any additional room(s) shown on the house plan such as a study, library or sunroom that could be closed off with a door, as a bedroom for the purposes of the following calculations.  Assuming construction of a new four-bedroom dwelling, water-saving fixtures, five (5) people maximum occupancy and wastewater generation of 150L/day/person.  Therefore:  Total Design Load = 750L/day

## 4.3 Intended water supply and sewer source

	Services
Domestic water supply	Reticulated water supply is likely to be provided.
Availability of sewer	No town sewerage system is likely to be connected in the short to medium future.

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## 5 Site and soil assessment

## 5.1 Work undertaken

	Assessment
Assessor:	Stephen O'Loughlin
Date:	August 7, 2019

### 5.2 Site assessment

Feature	Description	Level of constraint	Mitigation measures
Aspect (affects solar radiation received)	North	Nil	NN
Climate (difference between annual rainfall and pan evaporation)	Excess of rainfall over evaporation in the wettest months	Major	Rainfall is relatively low, averaging just over 500 mm per annum. Irrigation area sizing using the Nominated Area Water Balance & Storage Calculations allows for the wettest recorded months.
Erosion (or potential for erosion)	Nil	Nil	NN
Exposure to sun and wind	Full sun	Nil	NN
Fill (imported)	No fill	Nil	NN
Flood frequency (ARI)	Less than 1 in 100 years	Nil	NN
Groundwater bores	No bores onsite or on neighbouring properties	Nil	NN
Land area available for LAA	Meets LAA and duplicate LAA and buffer distance requirements	Moderate	No reserve area required for subsurface irrigation system.
Landslip (or landslip potential)	Nil	Nil	NN
Rock outcrops (% of surface)	<10%	Nil	NN
Slope Form (affects water shedding ability)	Straight side-slopes	Moderate	NN

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Slope gradient (%)			
(a) for absorption trenches and beds	<6%	Nil	NN
(b) for surface irrigation	<6%	Nil	NN
(c) for subsurface imigation	<10%	Nil	NN
Soil Drainage (qualitative)	Some signs or likelihood of dampness	Moderate	Irrigation area sizing using the Nominated Area Water Balance & Storage Calculations allows for the wettest recorded months.
Stormwater run-on	Low likelihood of stormwater run-on	Nil	NN
Surface waters - setback distance (m)	Setback distance complies with requirements in EPA Code of Practice 891.4 (as amended)	Nil	NN
Vegetation coverage over the site	Plentiful vegetation with healthy growth and good potential for nutrient uptake	Nil	NN
Soil Drainage (Field Handbook definitions)	Moderately well drained. Water removed somewhat slowly in relation to supply, some horizons may remain wet for a week or more after addition	Moderate	Shallow subsurface irrigation recommended with thorough water balance calculated.

\*NN: not needed

### 5.3 Soil key features

The site's soils have been assessed for their suitability for onsite wastewater management by a combination of soil survey and desktop review of published soil survey information as outlined below.

### 5.4 Geology

	Geological mapping
Geological Survey Code:	Qa1
Description:	Fluvial: alluvium, gravel, sand, silt.
Reference:	VANDENBERG, A.H.M., 1997. QUEENSCLIFF SJ 55-9 Edition 2, 1:250 000 Geological Map Series 1:250,000 geological map. Geological Survey of Victoria.

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### 5.5 Local Mine Hazards

	DPI Search for Mine Hazard results
Department of Primary Industries records:	"do not indicate the presence of any mining activity on this site, and the site appears to be outside any known mined area."

### 5.6 Soil

	Soil conditions
The predominant soil profile on site is:	Shallow sandy clay loam overlying stiff sandy clay.
Sample hole results:	Please refer to Attachment 4 for sample hole results.

## 5.7 Soil profile determination

	Assessment
Field work	Four (4) boreholes were established and excavated in the area of the proposed wastewater management systems on August 7, 2019.
Method of classification	The soil was classified according to AS/NZS 1547-1994/2012 while considering Teesdale's temperate climate.
Site and test plan	Please refer to Attachment 2.
Reporting	Please refer to Attachment 4.

#### 5.8 Soil assessment

Feature	Assessment	Level of Constraint	Mitigation Measures
Soil category (AS/NZ 1547:2012)	5b - moderately structured silty clay (medium to heavy clay).		
Soil depth	Soil: 200 - 300 <i>mm</i>	Minor	NN
Soil Permeability & Design Loading Rates	Subsoil: 5b - moderately structured silty clay (light clay): 0.06 - 0.12 m/day saturated conductivity (K <sub>sat</sub> ) (AS/NZS1547:2012); 3.5 mm/day Design Loading Rate (DLR) for irrigation system and 3 mm/day Design Loading Rate (DIR) for irrigation system (Code of Practice, 2013).	Moderate	Use conservative DIR = 3mm/day in calculations
Mottling	Very well to well-drained soils generally have uniform brownish or reddish colour	Nil	NN

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рН	5.5 - 8 is the optimum range for a wide range of plants	Nil	NN
Rock Fragments	0 – 10 %	Nil	NN
Soil Depth to Rock or other impermeable layer	>1.5 m	Nil	NN
Soil Structure (pedality)	Moderately-structured	Nil	NN
Soil Texture, Indicative Permeability	5b	Major	Use conservative DIR = 3mm/day in calculations
Watertable Depth (m) below the base of the LAA	>2m	Nil	NN

## 5.9 Golden Plains Shire Domestic Wastewater Management Plan Assessment

	Assessment
Rainfall Risk Rating:	Low Risk
Soil Risk Rating:	Low Risk
Slope Risk Rating:	Low Risk (<20%)
Groundwater Risk Rating:	Low Risk Area
Catchment Area:	Outside Designated Water Supply Catchment Area

#### 5.10 Groundwater Assessment

	DEPI Groundwater Data Search
Department of Environment and Primary Industries records:	Groundwater depth: 5 to 10m Groundwater salinity: 3500 – 7000mg/l

## 5.11 Victorian Planning Provision – Overlays

Overlay	Assessment
Planning Zone:	LDRZ - Low Density Residential Zone

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Planning Overlay:	DDO5 - Design And Development Overlay  • Schedule 5 - LDRZ setbacks

### 5.12 Overall assessment results and land capability rating

Based on the most constraining site features (rainfall and evaporation) and soil assessment (indicative permeability), the overall land capability of the proposed effluent management area is constrained. However, the effluent management system for each dwelling will be designed, installed and maintained in ways which will mitigate these factors.

The proposed effluent management area is located above the 1:100 flood level and by using secondary treatment and pressure-compensating sub-surface irrigation, there will be ample protection of surface waters and groundwater.

## 6 Wastewater management system

#### 6.1 Overview

This report provides recommendations for treatment and land application systems that are appropriate to the land capability. The following sections provide an overview of a suitable system, with sizing and design considerations and justification for its selection. Detailed design for the system is beyond the scope of this study, but should be undertaken at the time of building application and submitted to Council.

#### 6.2 Existing treatment system servicing current dwelling

#### Conventional septic tank with surface irrigation

The existing dwelling has a conventional concrete septic tank installed which is functioning perfectly. However, there is no dedicated land application system installed on this site.

Currently, effluent distribution is achieved by surface irrigation directly from the septic tank and is used to irrigate the lawns and garden using hoses. Spray irrigation is not permitted by Golden Plains Shire due to spray drift risk.

This will need to be upgraded to meet the standards applicable as described below.



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## Surface irrigation directly from the septic tank is used to irrigate the lawns and garden using hoses. Spray irrigation is not permitted by Golden Plains Shire due to spray drift risk.

#### 6.3 Type of treatment system required for both proposed sites

#### Sand Filter or Aerated Water Treatment System (AWTS)

To treat domestic wastewater and allow irrigation with the treated effluent, we recommend installing a system that provides secondary treatment to meet Environmental Protection Authority requirements for irrigation. Indicative target effluent quality is:

- BOD <20 mg/L;</li>
- SS <30mg/L.</li>

Several suitable options are available, including an aerated water treatment system (AWTS) or sand filter. Any of these options are capable of achieving the desired level of performance and final selection is the responsibility of the property owner, who will forward details to Council for approval.

In may be considered more cost effective to add a sand filter to the existing septic tank in Lot 1 in order to achieve secondary treatment on that site.

#### 6.4 Sizing the sand filter system

To determine the necessary size of the design area, the sizing relationship from AS/NZS 1547:1994 has been used:

Area of Sand Filter = 
$$\frac{Q}{50L/d}$$
  
where  $Q = Quantity of wastewater (L/d)  $50L/d = Sand filter acceptance rate$$ 

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#### Size

Existing dwelling - Lot 1 - Northern allotment

A sand filter system of 12m<sup>2</sup> is required for the existing three (3) bedroom dwelling on this site.

New dwellings - Lots 2 & 3 - Southern allotments

A sand filter system of 15m<sup>2</sup> is required for a proposed four (4) bedroom dwelling on each site.

Number of bedrooms	Number of occupants	Total daily household wastewater	Area of sand filter
3	4	600	12m²
4	5	750	15m <sup>2</sup>
5	6	900	18m²

#### 6.5 Alternative treatment system for new dwelling

#### Aerated Water Treatment System (AWTS)

To treat domestic wastewater and allow irrigation with the treated effluent, we recommend installing a system that provides secondary treatment to meet Environmental Protection Authority requirements for irrigation. The water quality of secondary standard effluent in Victoria is <20 mg/L BOD<sub>5</sub>, <30 mg/L TSS and, where disinfected, *E. coli* <10 cfu /100 mL.

An Aerated Water Treatment System (AWTS) is the preferred option and is designed to treat small (<2000L/day) wastewater flows. This system consists of a series of treatment chambers combined where air is bubbled through wastewater in a tank provides oxygen to micro-organisms to facilitate aerobic biological digestion of the organic matter in the wastewater.

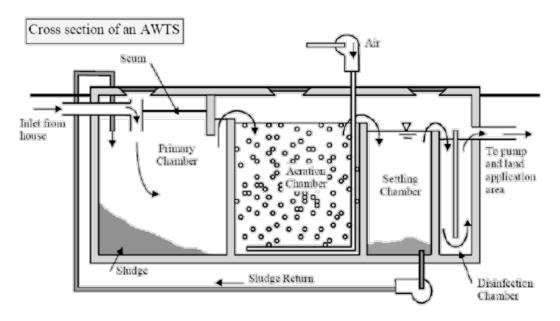
Wastewater from a household is treated in stages in several separate chambers. The first chamber is similar to a conventional septic tank. The wastewater enters the chamber where the solids settle to the bottom and are retained in the tank forming a sludge layer.

Scum collects at the top, and the partially clarified wastewater flows into a second chamber. Here the wastewater is mixed with air to assist bacteria to further treat it.

A third chamber allows additional clarification through the settling of solids, which are returned for further treatment to either the septic chamber or to the aeration chamber. The clarified effluent may be disinfected in another chamber (usually by chlorination) before irrigation can take place.

Bacteria in the first chamber break down the solid matter in the sludge and scum layers. Material that cannot be fully broken down gradually builds up in the chamber and must be pumped out periodically.

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#### 6.6 Type of land application system

#### Pressure compensating subsurface irrigation system

The default land application system for sustainably recycling secondary treated sewage or greywater effluent to land is pressure-compensating sub-surface irrigation (with disc or mesh filters and scour and vacuum valves) which evenly distributes effluent throughout the irrigation area.

The existing system servicing the dwelling Lot 1 will need to be upgraded with a sub-surface irrigation system.

The distribution pipes (drip-lines) fill up with effluent until a certain pressure is reached which opens the emitter valves. More controlled pressure can be applied when the field is divided into two or more zones and these smaller areas are intermittently dosed using a sequencing valve.

Water is not wasted by evaporation or runoff, flexible garden designs are possible, water is delivered to the plants' roots in the topsoil layer and it provides the highest protection for environmental and public health.

In combination with the selected secondary treatment system, these systems will provide even and widespread dispersal of highly treated effluent loads within the root-zone of plants.

Secondary quality effluent is a valuable water and nutrient resource and should be used beneficially to support vegetation growth, not be discharged deep in the soil profile where it provides very little beneficial use to the land or to the residents.

A gravity-flow effluent irrigation system is not allowed, due to the lack of even distribution. Irrigation distribution pipes must not have dripper-holes drilled or cut into them after purchase because the effluent will flow out of the holes in the first few metres of pipe at a far higher rate than the system is designed for and higher than the soil is capable of sustainably absorbing.

### 6.7 Sizing the irrigation system

To determine the necessary size of the effluent field system, water balance modelling has been undertaken using the method and water balance tool developed for the Victorian Land Capability Assessment Framework (2014). The calculations are summarised below, with full details provided in Attachment 5.

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The water balance can be expressed by the following equation:

#### Precipitation + Effluent Applied = Evapotranspiration + Percolation

	Data used in the water balance
Mean monthly rainfall station	Bannockburn (87009)
Mean monthly pan evaporation station	Bannockburn (87009) - SILO
Design loading rate (DLR)	3.5mm/day
Design irrigation rate (DIR)	3mm/day
Crop factor	0.6 to 0.8
Rainfall runoff factor	0.9

#### Size

Existing dwelling - Lot 1 - Northern allotment

 A subsurface irrigation field of at least 264m<sup>2</sup> is required for the existing three (3) bedroom dwelling on this site.

New dwellings - Lots 2 & 3 - Southern allotments

 A subsurface irrigation field of at least 330m<sup>2</sup> is required for a proposed four (4) bedroom dwelling on each site.

Number of bedrooms	Number of occupants	Total daily household wastewater	Area of subsurface irrigation bed
3	4	600	<b>264</b> m <sup>2</sup>
4	5	750	330m <sup>2</sup>
5	6	900	395m <sup>2</sup>

## 6.8 Siting and configuration of the irrigation system

#### Description

It is preferable to keep the irrigation area as high on the property as possible and a maximum distance from the boundaries as setbacks allow.

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The preferred effluent field areas for each of the proposed subdivided allotments should be located as follows:

- Existing dwelling Lot 1 Northern allotment
  - Effluent field envelope to south of garden area behind dwelling.
- New dwellings Lots 2 & 3 Southern allotment
  - Building envelope in southeast of each site.

Attachment 3 shows an envelope of land that is suitable for effluent management. Final placement and configuration of the irrigation system will be determined by the client and/or system installer, provided it remains within this envelope.

Whilst there is ample area for application of the effluent, it is important that appropriate buffer distances to the boundaries be maintained. It is important to note that buffers are measured as the overland flow path for run-off water from the effluent irrigation area.

#### 6.9 Buffer distances

#### Description

Setback buffer distances from effluent land application areas and treatment systems are required to help prevent human contact, maintain public amenity and protect sensitive environments. The relevant buffer distances for this site, taken from Table 5 of the Code (2013) are:

- 150 metres from a dam, lake or reservoir (potable water supply);
- 100 metres from waterways (potable water supply);
- 30 metres from waterways, wetlands (continuous or ephemeral, non-potable); estuaries, ocean beach at high-tide mark; dams, lakes or reservoirs (stock and domestic, non-potable);
- 20 metres from groundwater bores in Category 2b to 6 soils; and
- 3 metres if area up-gradient and 1.5 metres if area down-gradient of property boundaries, swimming pools and buildings (conservative values for primary effluent).

The setback distance in a Special Water Supply Catchment area may be reduced by up to a maximum of 50% conditional on the following requirements (otherwise the setback distances for primary treatment systems apply):

- effluent is secondary treated to 20/30 standard as a minimum
- a maintenance and service contract, with a service technician accredited by the manufacturer, is in
  place to ensure the system is regularly serviced in accordance with Council Septic Tank Permit
  conditions and
- Council is satisfied the reduction in set-back distance is necessary to permit the appropriate
  development of the site and that risks to public health and the environment are minimised.

Where an intermittent stream on a topographic or orthographic map is found through ground-truthing to be a drainage line (drainage depression) with no defined banks and the bed is not incised, the setback distance is 40 m (SCA 2010). The topography of the drainage line must be visually inspected and photographed during the LCA site inspection and reported upon in writing and photographs in the LCA report.

All buffer distances are achievable.

The site plan in Attachment 3 shows the location of the proposed wastewater management system components and other relevant features.

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#### 6.10 Installation of the irrigation system

#### Description

Installation of the irrigation system must be carried out by a suitably qualified, licensed plumber or drainer experienced with effluent irrigation systems.

To ensure even distribution of effluent, it is essential that the pump capacity is adequate for the size and configuration of the irrigation system, taking into account head and friction losses due to changes in elevation, pipes, valves, fittings etc. An additional, optional measure to achieve even coverage is to divide the irrigation area into two or more separate sub-zones; dosed alternately using an automatic indexing or sequencing valve.

The irrigation area and surrounding area must be vegetated or revegetated immediately following installation of the system, preferably with turf. The area should be fenced or otherwise isolated (such as by landscaping), to prevent vehicle and stock access; and signs should be erected to inform householders and visitors of the extent of the effluent irrigation area and to limit their access and impact on the area.

Stormwater run-on is not expected to be a concern for the proposed irrigation area, due to the landform of the site and its relatively gentle slopes. However, upslope diversion berms or drains may be constructed if this is deemed to be necessary during installation of the system, or in the future. Stormwater from roofs and other impervious surfaces must not be disposed of into the wastewater treatment system or onto the effluent management system.

#### 6.11 Monitoring, operation and maintenance

#### Description

Maintenance is to be carried out in accordance with Australian Standards 1546.1 to 1546.4 pursuant to the selected secondary treatment system and Council's permit conditions. The treatment system will only function adequately if appropriately and regularly maintained.

To ensure the treatment system functions adequately, residents must:

- Have a suitably qualified maintenance contractor service the treatment system at the frequency required by Council under the permit to use;
- Use household cleaning products that are suitable for septic tanks;
- Keep as much fat and oil out of the system as possible; and
- Conserve water (AAA rated fixtures and appliances are recommended).

#### To ensure the land application system functions adequately, residents must:

- Regularly harvest (mow) vegetation within the LAA and remove this to maximise uptake of water and nutrients;
- Monitor and maintain the irrigation system following the manufacturer's recommendations, including flushing the irrigation lines;
- Regularly clean in-line filters;
- · Not erect any structures and paths over the LAA;
- Avoid vehicle and livestock access to the LAA, to prevent compaction and damage; and
- Ensure that the LAA is kept level by filling any depressions with good quality topsoil (not clay).

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#### 7 Conclusions

As a result of our investigations we recommend that sustainable onsite wastewater management systems can be built to meet the needs of a three lot subdivision at 46 Squires Road, Teesdale.

Specifically, we recommend the following:

- Existing dwelling proposed Lot 1
  - Three bedroom dwelling
  - Secondary treatment of wastewater using a 12m<sup>2</sup> sand filter, which is to be added to the
    existing concrete septic tank;
  - Land application of wastewater in a 264m<sup>2</sup> pressure compensating subsurface irrigation area;
  - Location of Land Application Area to the south of the existing dwelling and garden area;
- New dwellings proposed Lots 2 & 3
  - · Four bedroom dwelling constructed in northwest of each proposed allotment;
  - Secondary treatment of wastewater in a 15m<sup>2</sup> sand filter or Aerated Water Treatment System;
  - Land application of wastewater in a 330m<sup>2</sup> pressure compensating subsurface irrigation area;
  - · Location of Land Application Area in the southeast of the proposed allotments;
- Moderately structured silty clay (light clay) should be considered to have a DIR of 3mm/d;
- Installation of water saving devices in the new residence to reduce the effluent load for onsite disposal;
- Use of low phosphorus and low sodium (liquid) detergents to improve effluent quality and maintain soil
  properties; and
- Operation and management of the treatment and disposal system in accordance with manufacturer's recommendations, Australian Standards 1546.1 to 1546.4 pursuant to the selected secondary treatment system, the EPA Code of Practice (2016) and the recommendations made in this report.

If there are any queries regarding the content of this report please contact this office.

STEPHEN O'LOUGHLIN Geologist

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## Attachment 1 - Locality plan

Plan included on next page.

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Council Meeting Attachments



## Attachment 2 - Soil testing program plan

Plan included on next page.

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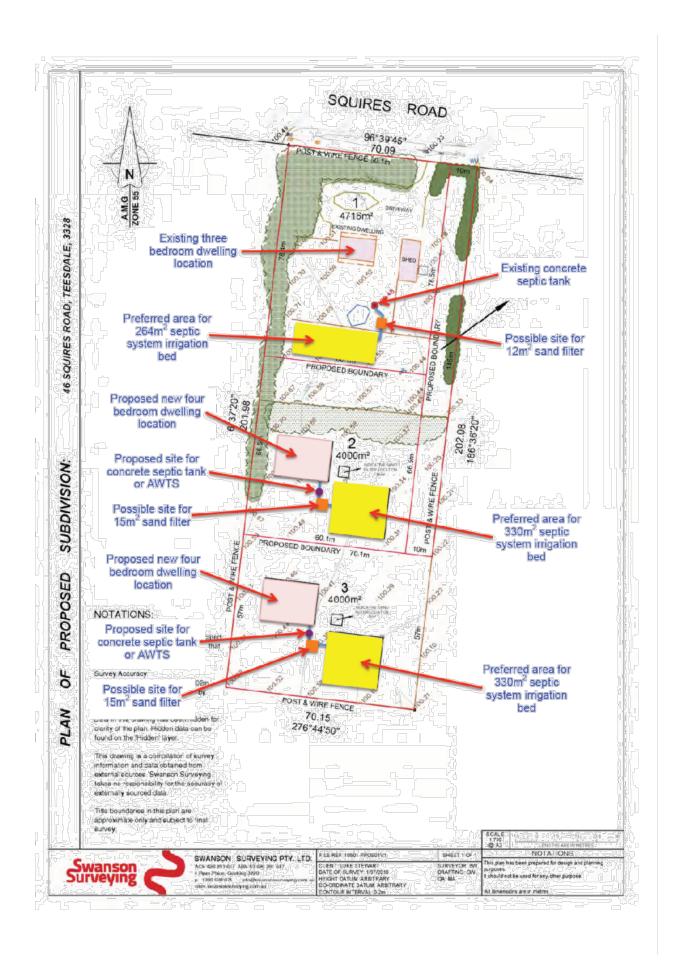
**Council Meeting Attachments** 



## Attachment 3 - Proposed wastewater treatment site

Plans included on next pages.

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## Attachment 4 - Sample hole results

#### Sample Hole BH01

Depth (mm)	Description	Fill	Moisture	Consistency	Allowable Bearing Pressure (kPa)	Reactivity
100	Sandy LOAM; dark brown		Slightly moist	Soft	_	_
200 300	Sandy clay LOAM; light brown	-	Wet	Soft	=	_
400 500 600 700 800 900 1000 1100 1200 1300 1400	Sandy CLAY; brown/red	1	Slightly moist	Stiff	130	High
1500	END OF HOLE					

#### Sample Hole BH02

Depth (mm)	Description	Fill	Moisture	Consistency	Allowable Bearing	Reactivity
					Pressure (kPa)	
100	Sandy LOAM; dark brown	_	Slightly moist	Soft	_	_
200	Sandy clay LOAM; It brwn/grey		Wet	Soft	_	
300	Sandy CLAY, brown/red	_	Slightly moist	Stiff	130	High
400						
500						
600						
700						
800						
900						
1000						
1100						
1200						
1300						
1400						
1500	END OF HOLE					

25

#### Sample Hole BH03

Depth (mm)	Description	Fill	Moisture	Consistency	Allowable Bearing Pressure (kPa)	Reactivity
100	Sandy LOAM; dark brown	_	Slightly moist	Soft	_	_
200	Sandy clay LOAM; It brwn/grey	_	Wet	Soft	_	_
300	Sandy CLAY; brown/red	_	Slightly moist	Stiff	130	High
400						
500						
600						
700						
800						
900						
1000						
1100						
1200						
1300						
1400						
1500	END OF HOLE					

### Sample Hole BH04

Depth (mm)	Description	Fill	Moisture	Consistency	Allowable Bearing Pressure (kPa)	Reactivity
100	Sandy LOAM; dark brown	_	Slightly moist	Soft	_	_
200	Sandy clay LOAM; dark brown	_	Very moist	Soft	_	_
300	Sandy CLAY; brown/red	_	Slightly moist	Stiff	130	High
400						
500						
600						
700						
800						
900						
1000						
1100						
1200						
1300						
1400						
1500	END OF HOLE					

26

#### Sample Hole BH05

Depth (mm)	Description	Fill	Moisture	Consistency	Allowable Bearing Pressure (kPa)	Reactivity
100	Sandy LOAM; dark brown	_	Slightly moist	Soft	_	_
200	Sandy clay LOAM; It brwn/grey	_	Wet	Soft	_	_
300	Sandy CLAY; orange/brown/	_	Slightly moist	Stiff	130	High
400	red					
500						
600						
700						
800						
900						
1000						
1100						
1200						
1300						
1400						
1500	END OF HOLE					

### Sample Hole BH06

Depth	Description	Fill	Moisture	Consistency	Allowable	Reactivity
(mm)					Bearing	
					Pressure (kPa)	
100	0 1 10111		00.10	0.7	(KFa)	
100	Sandy LOAM; dark brown	_	Slightly moist	Soft		_
200	Sandy clay LOAM; It brwn/grey		Wet	Soft	_	_
300	Sandy CLAY; orange/brown/	_	Slightly moist	Stiff	130	High
400	red					
500						
600						
700						
800						
900						
1000						
1100						
1200						
1300						
1400						
1500	END OF HOLE					

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## Attachment 5 - VicPlan Planning Property Report

Report included on next page.

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From www.planning.vic.gov.au on 09 August 2019 02:41 PM

PROPERTY DETAILS

Address: 46 SQUIRES ROAD TEESDALE 3328

Lot and P an Number: Lot 1 PS 611489 Standard Parce dent fer (SP): 1\PS611489 Loca Government Area (Counc ): GOLDEN PLAINS

www.go denp a ns.v.c.gov.au

Counc Property Number: 41400810 P ann ng Scheme: **Golden Plains** 

p ann ng schemes.de.wp.v.c.gov.au/schemes/go denp a ns

VicRoads 523 Q2 D rectory Reference:

STATE ELECTORATES UTILITIES

Rura Water Corporation: Southern Rural Water Leg s at ve Counc: WESTERN VICTORIA

Leg s at ve Assemb y: POLWARTH Urban Water Corporation: Barwon Water

Me bourne Water: outside drainage boundary

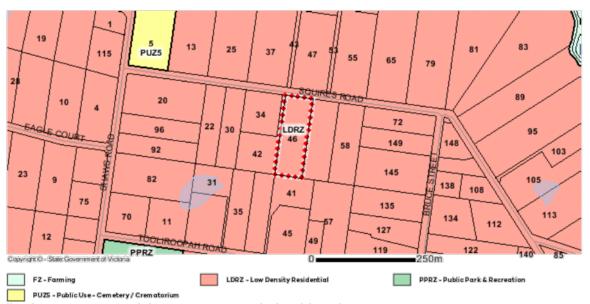
#### **Planning Zones**

Power D str butor:

LOW DENSITY RESIDENT ALIZONE (LDRZ)

SCHEDULE TO THE LOW DENSITY RESIDENT ALIZONE (LDRZ)

POWERCOR



No ex abes or zones may appear ou side the actual zone - please compare the labels with the legend.

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PLANNING PROPERTY REPORT: 46 QUR ROAD DA 3328



#### Planning Overlay

DES GN AND DEVELOPMENT OVERLAY (DDO)

DESIGN AND DEVELOPMENT OVERLAY SCHEDULE 5 (DDO5)



DDO - Design and Development

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PLANNING PROPERTY REPORT: 46 QUR ROAD DA 3328 Page2o 4



#### **Planning Overlays**

OTHER OVERLAYS

Other over ays in the vicinity not directly affecting this and

BUSHFRE MANAGEMENT OVERLAY (BMO)

ENV RONMENTAL S GN F CANCE OVERLAY (ESO)

FLOODWAY OVERLAY (FO)

LAND SUBJECT TO NUNDATION OVERLAY (LS O)



#### Further Planning Information

P ann ng scheme data ast updated on 7 August 2019.

A planning scheme sets out po c es and requirements for the use, development and protection of and. This report provides information about the zone and over ay provisions that apply to the selected and. nformat on about the State and oca po cy, part cu ar, genera and operat ona prov s ons of the oca p ann ng scheme that may affect the use of this and can be obtained by contacting the local council or by v s t ng https://www.pannng.vc.gov.au

This report is NOT a Planning Certificate issued pursuant to Section 199 of the Planning and Environment Act 1987. t does not not ude information about exhibited planning scheme amendments, or zonings that may abut the land. To obtain a Planning Certificate go to Titles and Property Certificates at Landata https://www.andata.vic.gov.au

For deta s of surrounding properties, use this service to get the Reports for properties of interest.

To view planning zones, over ay and her tage information in an interactive formativis time the horizontal structure formation of the structure formation in the structure for structure for the structure formation in the structure formatio For other information about planning in Victoria visit https://www.planning.vic.gov.au

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PLANNING PROPERTY REPORT: 46 QUR ROAD



#### Designated Bushfire Prone Area

This property is in a designated bushfire prone area.

Special bushfire construction requirements apply. Planning provisions may apply.



Designated Bushfire Prone Area

Designated bushfire prone areas as determined by the Minister for Planning are in effect from 8 September 2011 and amended from time to time.

The Bu d ng Regu at ons 2018 through app cat on of the Bu d ng Code of Austra a, app y bushfre protect on standards for bu d ng works n des gnated bushfre prone areas.

Designated bushfire prone areas maps can be viewed on VicP an at http://mapshare.maps.vic.gov.au/vicp an or at the re evant oca counc .

Note; pr or to 8 September 2011, the who e of V ctor a was designated as bushfire prone area for the purposes of the building control system.

Further information about the building control system and building in bushfire prone areas can be found on the Victor an Building Authority website <a href="www.vbavic.gov.au">www.vbavic.gov.au</a>

Cop es of the Bu d ng Act and Bu d ng Regu at ons are ava ab e from www.eg s at on.v c.gov.au

For P ann ng Scheme Prov s ons n bushf re areas v s thttps://www.p.ann.ng.v.c.gov.au

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PLANNING PROPERTY REPORT: 46 QUR ROAD

# Attachment 6 – Code of Practice Onsite Wastewater Management – Appendix D: Septic Tanks

Table included on next page.

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## Code of Practice Onsite Wastewater Management

### Appendix D: Septic Tanks

#### Commissioning

After installation or desludging, and before use, a septic tank must be two-thirds filled with clean water to:

- provide ballast in the tank to prevent groundwater lifting the tank out of the ground
- reduce odours
- enable any subsequent secondary treatment plant to be switched on, commissioned and used immediately.

When domestic wastewater from the dwelling flows into the septic tank it contains sufficient microbiological organisms to start and continue the treatment process. There is no need to 'feed' or dose a new or desludged septic tank with starter material or micro-organisms. If odour occurs after the commissioning of a system, a cup of garden lime can be flushed down the toilet each day until the odour disappears. If the odour persists, the property should seek professional advice from a plumber.

#### Sludge and scum

As organic matter from the wastewater and inert material, such as sand, settle to the bottom of the tank a layer of sludge forms. This layer contains an active ecosystem of mainly anaerobic micro-organisms which digest the organic matter and reduce the volume of sludge. Scum forms as a mixture of fats, oils, grease and other light material floats on top of the clarified liquid that has separated from the solids. When the clarified liquid flows out of the septic tank it is called 'primary treated effluent'.

It is not necessary or recommended that householders pour commercial products that are reputed to dissolve sludge buildup, down the toilet or sink. A teaspoon of granulated yeast flushed down the toilet once a fortnight may assist with microbial activity, though such a procedure is not an alternative to regular sludge and scum pump-out (Lord 1989).

#### Desludging septic tanks

Over time, the sludge and seum layers build up and need to be removed for the tank to function properly. The level of solids accumulation in the tank cannot be accurately predicted, and will depend on the waste load to the tank. Therefore, the sludge and seum depth should be checked annually by a contractor. If a septic tank is under a maintenance contract, regular assessment (every1 to 3 years) of the sludge and seum layers must be part of the maintenance agreement.

The sludge and scum need to be pumped-out with a vacuum suction system when their combined thickness equals 50% of the operational depth of the tank. The frequency of pump-out depends on:

- whether the tank is an adequate size for the daily wastewater flow
- the composition of the household and personal care products
- the amount of organic matter, fat, oil and grease washed down the sinks
- · the use of harsh chemicals such as degreasers
- overuse of disinfectants and bleaches
- · the use of antibiotics and other drugs, especially dialysis and chemotherapy drugs
- whether any plastic or other non-organic items are flushed into the tank.

A well-functioning septic tank—one that is not overloaded with liquid, organic matter or synthetic material—typically only needs to be desludged once every 3 to 8 years (depending on the size of the tank). A septic tank connected to a home with a frequently used dishwasher will need to be pumped out more frequently (typically every 3 to 4 years) than a home with no dishwasher connected (typically every 5 to 6 years). A holiday home will need to be pumped out less frequently. Large (6,000 L) domestic septic tanks which are common New Zealand and the USA and have started to be installed in Victoria, have been proven to require desludging only once every 10 to 15 years (Bounds, 1994).

After pump-out, tanks must not be washed out or disinfected. They should be refilled with water to reduce odours and ensure stability of plumbing fixtures. A small residue of sludge will always remain and will assist in the immediate re-establishment of bacterial action in the tank.

Householders should keep a record of their septic tank pump-outs and notify the local Council that a pump-out was undertaken in accordance with the Council Permit.

#### Septic tank failure

It is critical that a septic tank is not used as a rubbish receptacle. Septic tanks are designed solely for the treatment of water and organic materials. Items such as sanitary napkins, tampons, disposable nappies, cotton buds, condoms, plastic bags, stockings, clothing and plastic bottles will cause the septic tank to fail and require costly removal of these items. If a tank is contaminated or poisoned by household materials it should be pumped out immediately to enable the microbiological ecosystem to re-start.

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